

8. NICHE ALTERATION BY THE CUTCH ROCK-RAT, *CREMNOMYS CUTCHICUS* IN THE ARAVALLIS

The Cutch rock-rat, *Cremnomys cutchicus* has been recorded throughout its geographical range in India from rocky habitat. It prefers to inhabit crevices in between the rocks.

During the course of our studies on the small mammals in the Aravallis, we collected 271 specimens of this species from various habitats and altitudes of the Abu hill during 1993. The Cutch rock-rat was found to be the most abundant species out of the two insectivores and 12 rodents. Surprisingly, it was also collected from the crop fields situated at 1,000 and 1,600 metres altitudes. It inhabited the surrounding rocks and also rocky outcrops inside the crop fields. During night, it invaded the fields to feed upon the standing crops of maize, wheat, millet, etc.

Because of the availability of a large number of stones in the vicinity, the farmers erect 1½ - 2 metre high walls by loosely piling the stones on the periphery of their crop fields. On a comparison of the data on the frequency of occurrence of various small mammals in different habitats and altitudes, it was revealed that from the crop fields surrounded by loosely-piled stone-walls 35 *C. cutchicus*

were collected using 120 traps per 72 hours and from the fields without such walls, only 6 rock-rats were collected in 72 hours with 240 snap traps. This significant (Student's 't' test, $P < 0.05$) difference in their frequency of occurrence is due to the niche alteration by the rock-rats. Instead of living in the rock crevices, they have shifted to stay in the spaces between the loosely-piled stone-walls. Man has provided an additional niche to a wild species which has, due to human intervention in the ecosystem, become a pest of the standing crops. Besides offering extra shelter to them, man has also provided close proximity to more nutritive food. As a consequence, the prevalence of pregnancy among stone-wall dwellers has been found to be superior compared to the rock-crevice inhabiting *Cremnomys cutchicus*.

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9. SPECIES COMPOSITION OF FIELD RODENTS IN CENTRAL UTTAR PRADESH

INTRODUCTION

Surveys were carried out in different localities in five districts (Kanpur Dehat, Kanpur Nagar, Lucknow, Raebareli and Sitapur) of Central Uttar Pradesh during 1986-1988. Rodents were collected by digging 100 burrows from each locality and were identified on the basis of nucleus collection and later their identification was confirmed by the Zoological Survey of India, Calcutta.

RESULTS AND DISCUSSION

B. bengalensis was the most common (more than 50 per cent) at Bilhaur (Kanpur Dehat), Banthara (Lucknow) and Lal Ganj (Raebareli) followed by *T. indica*, while at Kalyanpur (Kanpur Nagar) and Khairabad (Sitapur), *T. indica* dominated. *M. booduga* came third in the collections made from Kanpur Dehat, Kanpur Nagar and Sitapur followed by *M. meltada*, while at Lucknow and Raebareli,

M. meltada was found in more numbers than *M. booduga*. *N. indica* was found at all survey sites except Raebareli ranging from 3.12 to 8.33 per cent of the total collection. Likewise, *Bandicota indica* was also collected from all places except Kanpur Dehat and Lucknow

ranging from 1.61 to 2.75 per cent.

Golunda ellioti Gray 3.12 per cent and *Vandeleuria oleracea* Bennett (3.90 per cent) were also collected from Kalyanpur (Kanpur Nagar) (Table 1). It was interesting to note that *V. oleracea* occupied deserted nests of weaver birds on Babool (*Acacia nilotica*) trees and also beneath the bundles of *Arlar* crop in threshing yards at the National Sugar Institute's Farm, Kalyanpur, Kanpur. From the available literature, *G. ellioti* and *V. oleracea* appear to be new records from this region.

The order of predominance of the five species was *B. bengalensis*, *T. indica*, *M. booduga*, *M. meltada* and *N. indica*, recorded from Kalyanpur in present survey study and are in conformity with the findings of Srivastava *et al.* (1968) who also reported these species from this locality, but they did not mention *G. ellioti* and *V. oleracea* as reported by us in this article. Therefore, the reports of these two field rats (*G. ellioti* and *V. oleracea*) forms the first record from Uttar Pradesh. The descriptions of these two species are given below.

(A) Bush rat, *G. ellioti*

It is interesting to note that not a single burrow of this species could be located near threshing floors. However, in certain pockets of the farm, particularly areas covered

TABLE I
SURVEILLANCE OF FIELD RODENTS (%) IN FIVE DISTRICTS OF CENTRAL UTTAR PRADESH

District surveyed	Total No. of rats in 100 burrows	<i>Bandicota bengalensis</i>	<i>Tatera indica</i>	<i>Millardia melitada</i>	<i>Mus booduga</i>	<i>Nesokia indica</i>	<i>Bandicota indica</i>	<i>Golunda ellioti</i>	<i>Vandeleuria oleracea</i>
Kanpur dehat (Bilhaur)	117	50.42	25.64	7.69	12.82	3.41	—	—	—
Kanpur Nagar (Kalyanpur)	128	24.20	47.65	4.68	10.93	3.12	2.34	3.12	3.90
Lucknow (Banthra)	132	53.03	18.93	12.87	6.81	8.33	—	—	—
Raebareli (Lal ganj)	124	51.61		29.83	12.09	4.83	—	—	—
Sitapur (Khairabad)	145	29.65	37.93	9.65	14.48	5.51	2.75	—	—

with shrub vegetation, some typical burrows could be traced out, which were inhabited by this species.

(B) **Long Tailed tree mouse, *V. oleracea***

Observations on feeding behaviour of the long tailed tree mouse revealed that it showed a marked preference for *Arhar* pods, though other harvested crops like wheat, barley, mustard and pea were also lying in the threshing yard.

Both the sexes of this species were recovered from the deserted nests of the weaver birds found hanging on babool (*Acacia nilotica*) trees.

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10. HETEROGENEOUS GROUPING — A STRATEGY AGAINST PREDATION

When 501 sq. Km of Kaimur hill ranges of Uttar Pradesh was declared as Kaimur Sanctuary in 1982, the main objective of the declaration was to protect the Blackbuck and Chinkara of the area. This dry deciduous and thorny scrub forest area of Mirzapur and Sonebhadra districts of U.P. rightly boasts of being a prototype habitat of blackbuck and chinkara in U.P., Undulating rocky terrain with low soil depth can only sustain natural growth of *Zizyphus* and *Carissa* species along with nallah with grass species such as *Heteropogon contortus* (Churshat), *Saccharum spontaneum* (Kans), *Chrysopogon fulvus* (Kuch), *Vetevaria zizaniodes* (Khas), *Eulaliopsis binata* (Bagai) scattered throughout the area.

Blue bull is another predominant herbivore. Nilgai is almost equally distributed in eastern and western parts of the sanctuary. Leopard, jackal and wolves are main predators of the smaller herbivores and are distributed

over the entire area of the sanctuary.

Chinkara generally does not enter cultivated areas whereas nilgai often becomes a pest to cultivated crops, but both avoid dense forests and are present in undulating terrain criss-crossed by nallahs with scanty vegetation of grass and shrubs. Blackbuck also prefers open plains avoiding dense forests. Scattered bushy growth with scanty grass cover interspersed with cultivated areas force the above three main herbivores to occupy almost the same territory in Kaimur Sanctuary.

Two noticeable observations were recorded regarding the behaviour of chinkara in this Sanctuary. Firstly, faecal stations of chinkaras coincide with the faecal stations of blue bull. It was noticed that Chinkara, whose males are territorial in behaviour (Prater 1948, THE BOOK OF INDIAN ANIMALS), excrete above the faeces of blue bull. Nilgai defecates at a particular spot, perhaps